

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Patent Application of:  
Takafumi Koshinaka

Application No.: 10/586,317

Confirmation No.: 2564

Filed: July 14, 2006

Art Unit: 2626

For: TOPIC SEGMENTING TEXT-PROCESSING  
METHOD, PROGRAM, PROGRAM  
RECORDING MEDIUM, AND DEVICE  
THEREOF

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Examiner: G. Borsetti

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

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MS AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Applicant respectfully requests a review of the legal and factual bases for the rejections in the above-identified patent application. Pursuant to the guidelines set forth in the Official Gazette Notice of July 12, 2005, for the Pre-Appeal Brief Conference Program, as extended by Official Gazette Notice of February 7, 2006, favorable reconsideration of the subject application is respectfully requested in view of the following remarks.

Claims 1-23 are pending in this application. All claims have been twice rejected and most recently in a Final Office Action dated April 27, 2009 (“the Final Office Action”). In an Advisory Action dated July 22, 2009 (“the Advisory Action”), Examiner has withdrawn certain rejections recited in the Final Office Action, but maintained that claims 1, 3-6, 10-12, 14-17, and 21-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over “Topic Segmentation with an Aspect Hidden Markov Model” by David M. Blei *et al.* (“Blei”) in view of “A statistical model for domain-independent text segmentation,” by Massao Utiyama *et al.* (“Utiyama”).

Claims 2, 9, 13 and 20 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Blei in view of Utiyama, and further in view of “A Tutorial on Hidden Markov Models and Selected Application in Speech Recognition” by Rabiner (“Rabiner”). Claims 7-8 and 18-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Blei in view of Utiyama, and further in view of “A Statistical Model for Domain-Independent text Segmentation” by Huo (“Huo”). Applicant respectfully submits that a pre-appeal review is appropriate because the rejection of these claims is improper for the reasons set forth in detail below.

Independent claims 1, 10, 11, 12, 21, 22 and 23 all contain a limitation that recites estimating a model parameter using the text itself. Specifically, independent claims 1, 10 and 11 recite, “estimating a model parameter corresponding to a text document as a processing target on the basis of the output of the initial value of the model parameter and only the text document.” Independent claim 12 recites, “estimating a model parameter corresponding to a text document as a processing target on the basis of the initial value of the model parameter output from said model parameter initializing means and only the text document,” and independent claims 21-23 recite “estimating a parameter of a probability model...wherein...the model is fully defined by a model parameter set which is comprised of word output probabilities of words in the topics in the text document and topic transition probabilities.”

In direct contrast to the specific requirements of independent claims 1, 10, 11, 12, 21, 22 and 23, Blei requires training data to estimate a model parameter rather than using the text itself. In fact, page 12 of the Final Office Action admits that “Blei fails to teach that the EM algorithm operates only on the text document itself (no training data).” The Final Office Action contends, however, that Utiyama teaches text segmentation without training data, and then concludes that it would have been obvious to one of skill in the art to combine the teachings of Blei and Utiyama in order to utilize the features of Blei without the use of training data.

Such a conclusion, however, is unfounded because Utiyama actually teaches away from such a combination. When contemplating combining the segmentation method of Utiyama with the method of Blei in which training data is available, Utiyama specifically states that “[i]t

would be interesting, however, to compare our algorithm with their algorithm for the case when training data are available. In such a case, our model should be extended to incorporate various features such as the average segmentation length, clue words, named entities, and so on.” See Utiyama at page 505, lines 10-16.

By Utiyama’s own admission, using a method such as Blei’s in combination with Utiyama is only contemplated when training data is available. As such, one of skill in the art would not find it obvious to combine Utiyama and Blei and eliminate the need for training data. Quite to the contrary, Utiyama specifically states that training data use would be needed if such a combination were to occur. Thus, it would not have been obvious to one of skill in the art to combine Blei and Utiyama in the absence of training data and estimate a model parameter using the text itself, as required by independent claims 1, 10, 11, 12, 21, 22 and 23.

In the Advisory Action, the Examiner argued again that “it would have been obvious to one of skill in the art to combine Blei and Utiyama in the absence of training data and estimate a model parameter using the text itself.” In support of this argument, the Examiner has cited the sentence in Utiyama that states, “It would be interesting, however, to compare our algorithm with their algorithm for the case when training data is available,” (Utiyama at page 505, lines 10-15) means “[w]hen training data is available to the algorithm of Utiyama, it could be taken into consideration to make judgments on topic segmentation similar to Blei.” The Examiner further stated that “Training data would change how the system recognizes topics based on known information, that is what would be ‘interesting’ because it puts both algorithms on a field for comparison.”

It is respectfully submitted that the Examiner is misunderstanding the disclosure of Utiyama. Utiyama states, when contrasting its algorithm with that used in methods such as Blei’s, “Another major difference from their algorithm is that our algorithm does not require training data to estimate probabilities while their algorithm does.” Utiyama at page 505 lines 4-6. Thus, in order to compare or combine the two algorithms, one must use a situation where training data is available because, according to Utiyama, text segmentation using a Hidden

Markov Model cannot function without training data. See id. at lines 10-12. If Utiyama itself does not contemplate using an algorithm such as Blei's without training data, it necessarily follows that it would not be obvious to combine Utiyama and Blei to arrive at the present invention of estimating a model parameter using the text itself as defined in independent claims 1, 10, 11, 12, 21, 22 and 23. Any other conclusion contradicts the explicit teachings of the cited references.

Rabiner and Huo do not remedy any of the deficiencies of Blei and Utiyama. Nowhere within Rabiner or Huo is it disclosed, let alone suggested, to estimate a model parameter using the text itself. Therefore, even if one were to combine the teachings of Rabiner, Huo, Blei and Utiyama, one would not arrive at the present invention as defined in independent claims 1, 10, 11, 12, 21, 22 and 23. Accordingly, it is respectfully submitted that independent claims 1, 10, 11, 12, 21, 22 and 23 patentably distinguish over the art of record.

Claims 2-9 depend either directly or indirectly from independent claim 1 and include all of the limitations found therein. Claims 13-20 depend either directly or indirectly from independent claim 12 and include all of the limitations found therein. Each of these dependent claims include additional limitations which, in combination with the limitations of the claims from which they depend, are neither disclosed nor suggested in the art of record. Accordingly, claims 2-9 and 13-20 are likewise patentable.

In view of the foregoing, Applicant respectfully submits that pending claims 1-23 are patentable over the cited references. Furthermore, Applicant respectfully requests that the pending rejections be withdrawn and a Notice of Allowance issued.

In the event a fee is required or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 50-2215.

If this communication is filed after the shortened statutory time period had elapsed and no separate Petition is enclosed, the Commissioner of Patents and Trademarks is petitioned, under 37 C.F.R. 1.136(a), to extend the time for filing a response to the outstanding Office Action by the number of months which will avoid abandonment under 37 C.F.R. 1.135. The fee under 37 C.F.R. 1.17 should be charged to our Deposit Account No. 50-2215.

Dated: August 27, 2009

Respectfully submitted,

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